

WE CLAIM:

1. An integrated blade cooler for electronic components comprising a blower, an electric drive and a heatsink, wherein:

- (i) said blower comprises a radial impeller and a casing with an inlet and an outlet;
- (ii) said radial impeller comprises blades, a backplate disk and an axis of rotation;
- (iii) said electric drive comprises a magnetic rotor and a stator made as a part of said casing;
- (iv) said radial impeller comprises magnetic means serving as a magnetic rotor of said electric drive;

- (v) said heatsink comprises heat-exchanging means clothed in a cover plate with an outflow opening and a base providing thermal contact with said electronic component and said heat exchanging means;

- (vi) said outflow opening of said cover plate being coincided with said inlet of the blower, thus cooling gas flows through said heat-exchanging means, said blower inlet, said radial impeller, and said blower outlet in a series way.

2. The cooler as claimed in claim 1, wherein said stator is made as printed circuit board.

3. The cooler as claimed in claim 1, wherein at least part of said cover plate is made as a part of said casing so that said outflow opening serves as said inlet of the blower.

4. The cooler as claimed in claim 1, wherein said stator is located perpendicularly to said axis of rotation, and said magnetic means magnetized in the direction parallel to said axis of rotation.

5. The cooler as claimed in claim 1, wherein at least part of blades are magnetized and serve as said magnetic means.

6. The cooler as claimed in claim 3, wherein said radial impeller further comprises a shroud made from the magnet-conducting material that contacts with said magnetic blades.

7. The cooler as claimed in claim 1, wherein said backplate disk is magnetized.

8. The cooler as claimed in claim 1, wherein said radial impeller further comprises a magnetic shroud.

9. The cooler as claimed in claim 1, wherein said radial type impeller is made as drum type impeller.

10. The cooler as claimed in claim 1, wherein said stator is located on the side of said blower opposite to the heatsink.

11. The cooler as claimed in claim 1, wherein said stator is made as a part of said cover plate.

12. The cooler as claimed in claim 11, further comprising magnetic insulation between said stator and said heatsink.

13. The cooler as claimed in claim 11, wherein said radial impeller further comprises said magnetic shroud.

14. The cooler as claimed in claim 1 further comprising two stators made as parts of said casing and located perpendicularly to said axis of rotation on the opposite sides of said blower.

15. The cooler as claimed in claim 1, wherein a side part of said casing parallel to said axis of rotation has two outlets located on the opposite sides of said blower.

16. The cooler as claimed in claim 1, wherein said side part of the casing made as several, at least three, elements like pillars, located at distances one from another forming several outlets of said blower.

17. The cooler as claimed in claim 1, wherein said heat-exchanging means are pins or/and fins.

18. The cooler as claimed in claim 1, wherein said heatsink has a recess on the side of an outflow opening, and said blower is located in said recess.

19. The cooler as claimed in claim 18, wherein the depth of said recess is so that the side of said casing of the blower opposite to said heatsink is located in about the same level as said cover plate of said heatsink.

20. The cooler as claimed in claim 18, wherein said recess with said blower is located in the central part of said heatsink.